2nd Generation EmiClare MicroMesh – MM2

Overview

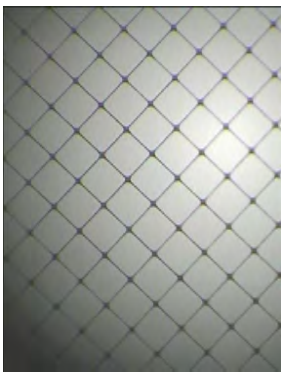
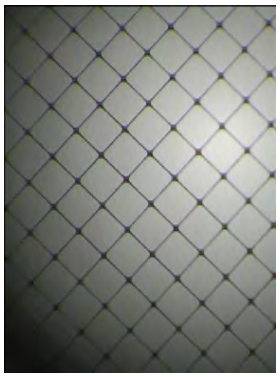
For 25 years Optical Filters has been at the forefront in the innovation and development of EMI/RFI shielding solutions for display and windows. The **2nd Generation EmiClare MicroMesh** is the latest in a series of products that started with the original EmiClare woven wire mesh. As displays continue to evolve in size and definition, the new generation MicroMesh offers the combination of higher light transmission and shielding effectiveness that is not achievable with ITO coatings.

2nd Generation EmiClare MicroMesh is the result of Optical Filters' continued R&D program and maintains the principle of innovation by combining the fine line conductive printing process as introduced with our EmiClare LaserMesh with the display-optimized pattern that has made EmiClare MicroMesh the leading solution for shielded displays and touch screens.

This document presents the features of the **2nd Generation EmiClare MicroMesh** in comparison with the discontinued 1st Generation MicroMesh and EmiClare LaserMesh which are now obsolete

1.0 Mesh Specification

A line spacing of 300µm (85opi) is the optimum pitch for electronic displays and is a common specification for all 3 products. The improved **2nd Generation EmiClare MicroMesh** product offers the benefits of the scalloped aperture shaping for improved control of moiré fringing together with finer line width which gives more open area and better light transmission.

	EmiClare MicroMesh 2nd Generation- MM2	EmiClare MicroMesh	EmiClare LaserMesh
Line pitch / spacing	**300µm / 85opi**	300µm / 85opi	300µm / 85opi
Average line width	**8µm / 0.0003"**	10µm / 0.0004"	25µm / 0.0010"
Open area	**95%**	93%	83%
Appearance			

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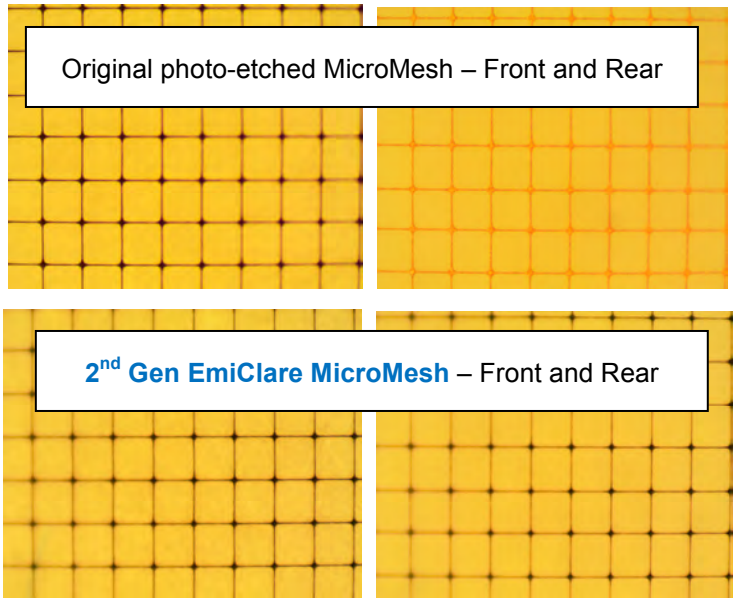
2.0 Optical performance

Displays with **2nd Generation EmiClare MicroMesh** will be brighter and shall be more readable in all conditions. In addition to increased Photopic Transmission the dull black finish of all edges on the **2nd Generation EmiClare MicroMesh** reduces Diffused Reflectance and improves the sunlight readability when compared to with exposed copper in a photo etched MicroMesh.



	EmiClare MicroMesh 2nd Generation- MM2	EmiClare MicroMesh	EmiClare LaserMesh
Photopic Transmission	**≥85%**	**≥75%**	**≥70%**
Diffuse Reflectance @ 30°	**≤0.14%**	**≤0.37%**	**≤0.90%**
Specular Reflectance @ 30°	**≤1.2%**	**≤0.7%**	**≤0.7%**

 # Average data taken when optically laminated between anti-reflective glass layers

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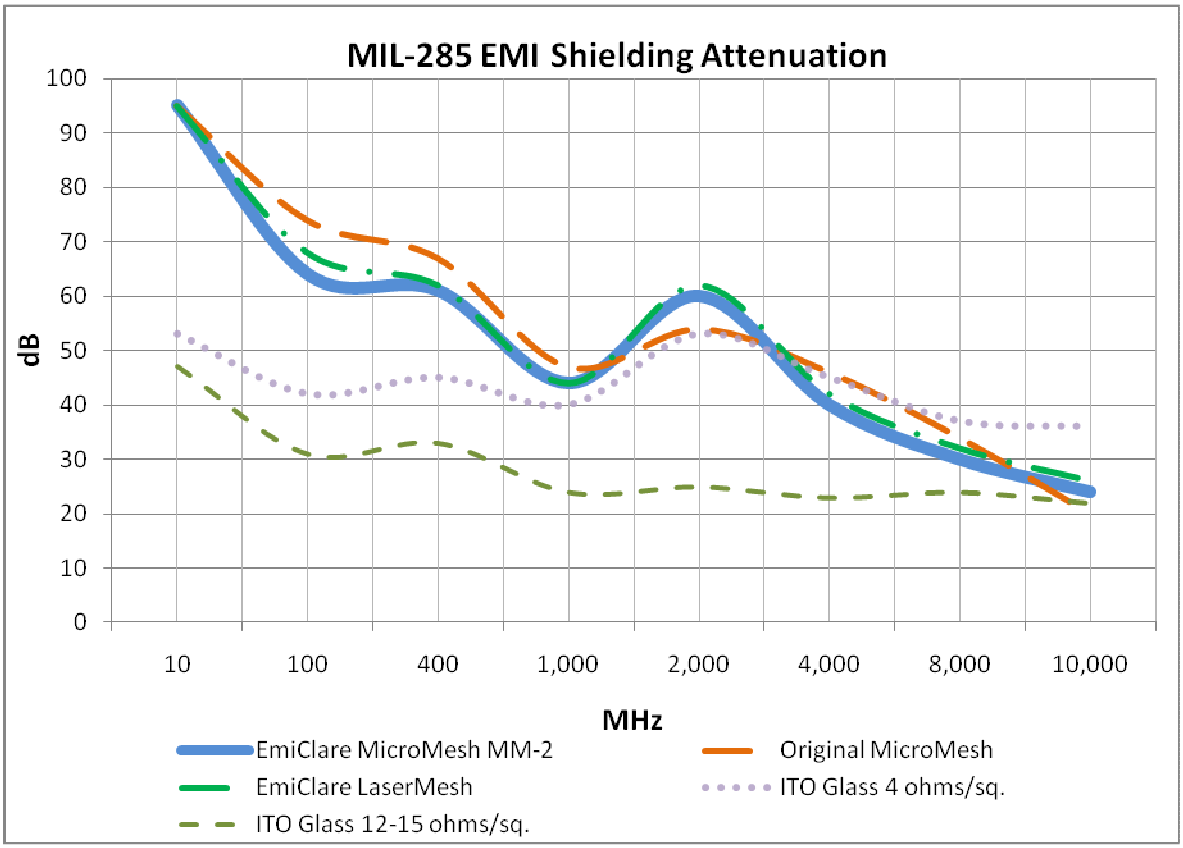
3.0 Electrical properties

2nd Generation EmiClare MicroMesh offers equivalent surface resistance to the former LaserMesh and comparable overall performance in attenuation typically observed in application testing

	EmiClare MicroMesh 2nd Generation- MM2	EmiClare MicroMesh	EmiClare LaserMesh
Surface resistance	**≤0.25Ω/sq**	**≤0.1Ω/sq**	**≤0.25Ω/sq**



4.0 Structure

The subtractive photo-etched process to form the micro-replicated conductive grid in MicroMesh manufacture results in a diffused aperture that requires a secondary lamination to make an optically clear filter. With a deposition process the aperture of **2nd Generation EmiClare MicroMesh** is clear removing the requirement to fully optical laminate.

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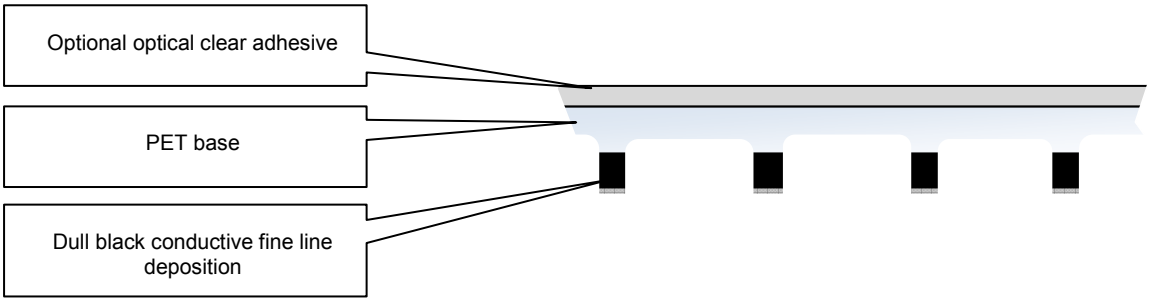

5.0 Format

	EmiClare MicroMesh 2nd Generation- MM2	EmiClare MicroMesh	EmiClare LaserMesh
Maximum optical area	**634 x 1124mm**	630 x 1130mm	600 x 1100mm
Standard bias angle	**36° +/-1°**	36° +/-2°	36° +/-1°
Total thickness	**130µm**	130µm	130µm
PSA Option	**25µm**	25µm	25µm

 # Bias angle from the front measured anti-clockwise from horizontal